

REVIEWS

Striving for Optimal Care: Updates in Quality, Value, and Patient Experience

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BACKGROUND: Hospitalists are playing a growing role in quality improvement efforts, and they are increasingly spearheading programs to improve patient experience and healthcare value. We aimed to summarize and critique recent research related to quality, value, and patient experience in the clinical practice of hospital medicine.

METHODS: We reviewed articles published between January 2014 and February 2015, identified through a hand search of leading journals, continuing medical education collaborative journal reviews, Agency for Healthcare Research and Quality's Patient Safety network, and PubMed. The authors collectively selected 9 articles based on their relevance to hospital practice. We review their findings, strengths, and limitations and make recommendations for practice. This is a summary of an update we presented at the 2015 Hospital Medicine national meeting.

RESULTS: Key findings include: a comprehensive hand-off program was associated with improved patient safety; suc-

cessful readmissions interventions were resource-intensive, multifaceted and increased patient capacity to handle illness; patient activation was correlated with lower resource use post-hospitalization; positive associations exist between patient experience and understanding of their hospitalization; hospitals and practitioners can adopt simple low-cost strategies to reduce the trauma of hospitalization; hospitalists frequently order low-value tests, most often to reassure themselves or their patients; broad-spectrum antibiotics are grossly overused in hospitalized patients leading to preventable harms including *clostridium difficile* colitis, and programs that support "self-stewardship" may help moderate this risk.

CONCLUSIONS: Recent research provides important insights into readmissions prevention, patient experience and low-value test ordering, as well as introduces interventions that may mitigate the risks of handoffs and the overuse of broad-spectrum antibiotics. *Journal of Hospital Medicine* 2016;11:145–150. © 2015 Society of Hospital Medicine

Hospitalists have a professional obligation to provide the highest quality care for patients and increasingly, hospitalists lead programs to improve quality, value, and patient experience.^{1–3}

The federal government introduced the hospital Value-Based Purchasing (VBP) program in 2012, initially with 1% of Medicare hospital payments tied to quality indicators. This percentage will continue to grow and the VBP program has expanded to include metrics related to quality, safety, cost-effectiveness, and patient satisfaction.⁴ Hospitals now face significant financial penalties if they do not achieve these benchmarks; thus, remaining up-to-date with the literature and the most promising interventions in these arenas is vital for hospitalists.

The goal of this update is to summarize and critique recently published research that has the greatest potential to impact clinical practice in quality, value, and patient experience in hospital medicine. We reviewed articles pub-

lished between January 2014 and February 2015. To identify articles, we hand-searched leading journals, continuing medical education collaborative journal reviews (including *New England Journal of Medicine*, *Journal Watch* and the American College of Physicians Journal Club), the Agency for Healthcare Research and Quality's Patient Safety network, and PubMed. We evaluated articles based on their scientific rigor (peer review, study methodology, site number, and sample size) and applicability to hospital medicine. In this review, we summarize 9 articles that were felt by the authors to have the highest potential for impact on the clinical practice of hospital medicine, as directly related to quality, value, or patient experience. We present each topic with a current quality question that the accompanying article(s) will help address. We summarize each article and its findings and note cautions and implications for practice. The selected articles cover aspects related to patient safety, readmissions, patient satisfaction, and resource utilization, with each of these topics related to specific metrics included in VBP. We presented this update at the 2015 Society of Hospital Medicine national meeting.

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IS THERE ANYTHING WE CAN DO TO MAKE HANDOFFS SAFER?

Starmer AJ, Spector ND, Srivastava R, et al. Changes in medical errors after implementation of a handoff program. *N Engl J Med*. 2014;371(19):1803–1812.

Background

With recent changes in resident duty hours and staffing models, the number of clinical handoffs during a patient's hospital stay has been increasing.⁵ The omission of critical information and the transfer of erroneous information during handoffs is common, which contributes to preventable medical errors.⁶

Findings

This prospective intervention study of a resident handoff program in 9 hospitals sought to improve communication between healthcare providers and to decrease medical errors. The I-PASS mnemonic, which stands for illness severity, patient summary, action list, situation awareness, and synthesis by receiver, was introduced to standardize oral and written handoffs. The program also included a 2-hour workshop, a 1-hour role-playing and simulation session, a computer module, a faculty development program, direct observation tools, and a culture change campaign. Medical errors decreased by 23% following the intervention, compared to the preintervention baseline (24.5 vs 18.8 per 100 admissions, $P < 0.001$), and the rate of preventable adverse events dropped by 30% (4.7 vs 3.3 events per 100 admissions, $P < 0.001$), whereas nonpreventable adverse events did not change. Process measures of handoff quality uniformly improved with the intervention. The duration of oral handoffs was approximately 2.5 minutes per patient both before and during the intervention period.

Cautions

Not all of the sites in the study saw significant reductions in medical errors; 3 of the programs did not have significantly improved medical error rates following implementation of the I-PASS handoff bundle. The study design was not a randomized controlled trial, and thus the pre- versus postimplementation analyses cannot draw definitive causal links between the intervention and the observed improvements in safety outcomes. Furthermore, this study was done with pediatric residents, and one cannot assume that the results will translate to practicing hospitalists, who may not benefit as much from a scripted sign-out.

Implications

A comprehensive handoff program that included the I-PASS mnemonic along with extensive training, faculty development, and a culture-change campaign was associated with impressive improvements in patient safety outcomes, without negatively effecting workflow.

WHAT ARE THE COMMON FEATURES OF INTERVENTIONS THAT HAVE SUCCESSFULLY REDUCED READMISSIONS?

Leppin AL, Glonfriddo MR, Kessler M, et al. Preventing 30-day hospital readmissions: a systematic review and meta-analysis of randomized trials. *JAMA Intern Med.* 2014;174(7):1095–1107.

Background

Hospital readmissions are common, costly, and potentially represent a failure to adequately prepare patients for hospital discharge, but efforts to prevent 30-day readmissions have been mixed.⁷ The investigators in this study offer a novel framework, the cumulative complexity model, as a way to conceptualize postdischarge outcomes such as readmission. The model depicts the balance between the patient's workload of managing their illness, including the demands of monitoring treatment and self-care, and the patient's capacity to handle that work—functionality, financial/social resources, literacy, and empowerment. Workload-capacity imbalances (when workload outstrips capacity) may lead to progressively increasing illness and increasing complexity, which contribute to poor patient outcomes like readmissions. Decreasing a patient's workload or increasing their capacity may be effective in reducing readmissions.

Findings

Investigators sought to identify factors associated with successful interventions to reduce 30-day readmissions, including how the interventions fit into the cumulative complexity model. After performing a comprehensive search of randomized trials of interventions to reduce readmissions, the investigators identified 42 randomized trials with the primary outcome of 30-day readmission rates. In addition to reviewing intervention characteristics, blinded raters scored interventions based on their effects on reducing or increasing patient workload and reducing or increasing patient capacity for self-care. Interventions that had several components (eg, pharmacy education, postdischarge phone calls, visiting nurses, health coaches, close primary care follow-up) were more likely to be successful (1.4 times as likely; $P = 0.001$), as were interventions that involved 2 or more individuals (1.3 times as likely; $P = 0.05$). Interventions that were published prior to 2002 were 1.6 times more likely to have reduced readmissions ($P = 0.01$). When applied to the cumulative complexity model, interventions that sought to augment patient capacity for self-care were 1.3 times as likely to be successful ($P = 0.04$), whereas no relationship was found between an intervention's effect on patient workload and readmission.

Cautions

The authors evaluated each intervention based on the degree to which it was likely to affect patient workload and patient capacity. Because a multifaceted intervention may have had components that increased patient workload (eg, more self-monitoring, appointments) and decreased patient workload (home visits, visiting nurses), the true effect of patient workload on readmissions may not have been optimally analyzed in this study. Additionally, this element of the study

relied on a value judgment original to this work. Interventions that are burdensome to some, may be beneficial to those with the capacity and resources to access the care.

Implications

The body of studies reviewed suggests that interventions to reduce 30-day readmissions are on the whole successful. Their findings are in keeping with past studies demonstrating more successful interventions that are resource-intensive and multifaceted. Finding successful interventions that are also cost-effective may be challenging. This article adds the cumulative complexity framework to what we already know about readmissions, highlighting patient capacity to manage the burden of their illness as a new factor for success. Efforts to deliver patient-centered education, explore barriers to adherence, and provide health coaching may be more successful than interventions that unwittingly add to the burden of disease treatment (multiple follow-up appointments, complex medication schedules, and posthospital surveys and patient self-assessments).

DOES PATIENT ACTIVATION CORRELATE WITH DECREASED RESOURCE USE OR READMISSIONS?

Mitchell SE, Gardiner PM, Sadikova E, et al. Patient activation and 30-day post discharge hospital utilization. *J Gen Intern Med.* 2014;29(2):349–355.

Background

Patient activation is widely recognized as the knowledge, skills, and confidence a person has in managing their own health or healthcare. Higher patient activation has been associated with improved health outcomes, but the relationship between patient activation and readmission to the hospital within 30 days is unknown.⁸

Findings

Using data from Project RED-LIT (Re-Engineered Discharge for patients with low health literacy), a randomized controlled trial conducted at an urban safety-net hospital, investigators examined the relationship between all unplanned utilization events of hospital services within 30 days of discharge and patient activation, as measured by an abbreviated 8-item version of the validated Patient Activation Measure (PAM). The PAM uses agreement with statements about a patient's sense of responsibility for his or her own health, confidence in seeking care and following through with medical treatments, and confidence in managing new problems to measure activation. The 695 participants were divided into quartiles based on their PAM score, and the investigators looked at the rates of unplanned utilization events in each group. After adjusting for potential confounders such as gender, age, Charlson Comorbidity Index, insurance, marital status, and

education, there remained a significant effect between PAM and 30-day hospital reutilization. Compared with those who scored in the highest quartile of activation, those in the lowest quartile had 1.75 times the rate of 30-day reutilization ($P < 0.001$). Those in the second highest and third highest quartile had 1.3 ($P = 0.03$) and 1.5 times ($P < 0.001$) the rate of reutilization demonstrating a dose-response relationship between activation and low reutilization.

Cautions

It is as yet unclear how best to apply these results and whether “activation” is a modifiable risk factor. Can a patient become more activated by providing more education and coaching during their hospital stay? Can providing close follow-up and home services make a person more confident to manage their own illness? Although early identification of patients with low activation using PAM is being done at many hospitals, there is no study to suggest that targeting these patients can reduce readmission.

Implications

A low level of patient activation appears to be a risk factor for unplanned hospital utilization within 30 days of discharge. Given the increasing financial penalties, many hospitals across the country are using the PAM to determine how much support and which services they provide after discharge. Identifying these patients early in their hospitalization could allow providers to spend more time and attention on preparing them for managing their own illness after discharge. As above, the effects of this intervention on readmissions is as yet unclear.

IS THERE A RELATIONSHIP BETWEEN PATIENT SATISFACTION AND UNDERSTANDING OF THE PLAN OF CARE?

Kebede S, Shihab HM, Berger ZD, et al. Patients' understanding of their hospitalizations and association with satisfaction. *JAMA Intern Med.* 2014;174(10):1698–1700.

Background

Effective patient-physician communication is associated with improved patient satisfaction, care quality, and clinical outcomes.⁹ Whether a shared understanding of the plan of care between patients and clinicians affects satisfaction is unknown.

Findings

One hundred seventy-seven patients who had 2 or more medical conditions, 2 or more medical procedures, and 2 or more days in the hospital were interviewed on the day of discharge. Patients were questioned about their overall understanding of their hospitalization and about specific aspects of their care. They were also asked to provide objective data to measure their understanding of their hospital course by (1) listing their medical diagnoses, (2) identifying indications for medication on

discharge paperwork, and (3) listing tests or procedures they underwent from a standard list. Patients were then asked to rate their satisfaction with their hospitalization. Patients' self-reported understanding was an average of 4.0 (very good) on a 5-point scale. Their measured understanding scores for medical diagnoses, indications for medications and tests and procedures were 48.9%, 56.2%, and 59.4%, respectively. Factors associated with poor understanding of their hospital course were increasing age, less education, lower household income, black race, and longer length of stay. Patients reported a mean satisfaction of 4.0 (very satisfied). Higher self-reported understanding was associated with higher patient satisfaction, irrespective of actual understanding.

Cautions

Despite their suboptimal measured understanding of their hospital course, the average patient rated their understanding as very good. This suggests that patients are either poor judges of effective communication or have low expectations for understanding. It also calls into question the relationship between quality of communication and patient satisfaction, because despite their satisfaction, patients' actual understanding was low. There was, however, a clear and positive relationship between patients' perceived understanding and their satisfaction, suggesting that shared understanding remains integral to patient satisfaction.

Implications

Patient satisfaction appears to be tied to patients' perceived understanding of their care, but when tested actual understanding was suboptimal. Further efforts in patient satisfaction should not only focus on the quality of our communication, but on the resulting understanding of our patients.

WHAT ARE UNIVERSAL STRATEGIES TO IMPROVE SATISFACTION AND PATIENT OUTCOMES?

Detsky AS, Krumholz HM. Reducing the trauma of hospitalization. *JAMA*. 2014;311(21):2169–2170.

Background

Although high readmission rates are a national problem, a minority of patients treated for common conditions like pneumonia, heart failure, and chronic obstructive pulmonary disease are readmitted for the same problem.¹⁰ This suggests that readmissions may stem not from poor disease management, but from patient vulnerability to illness in the period following hospitalization.

Findings

In this viewpoint opinion article, the authors suggest that the “depersonalizing and stressful hospital atmosphere” contributes to a transient vulnerability in the period following hospitalization that makes it challenging for patients to care for themselves and their

illness. They offer specific strategies for changing the nature of our hospital care to promote healing and to decrease patient stress. The authors suggest promoting personalization through accommodation of family members, and allowing personal clothing and personal décor in their rooms. Physicians and consultants should make appointments so that patients and families can know when to expect important visits. The authors also focus on the provision of rest and nourishment by reducing nighttime disruption and the elimination of unnecessary restrictive diets. They argue that the hospital is a place of stressful disruptions and surprises, which could all be ameliorated by providing patients with a way to understand the members of their team and their roles as well as through providing a clear schedule for the day. Healthcare providers should not enter a room unannounced, and patients should be given private rooms as much as possible. Last, the authors focus on the elimination of unnecessary tests and procedures such as blood draws, telemetry, and urine cultures and the encouragement of activity by providing activities where patients can gather together outside their rooms.

Cautions

If these changes seem simple, they may not be. Many involve a significant shift in our thinking on how we provide care—from a focus on disease and provider convenience to a true consideration for the health and peace of mind of our patients. Starting with small steps, such as reductions in phlebotomy and nighttime vital signs checks for the most stable patients and ensuring accommodations for families, may make this long list seem less daunting.

Implications

By promoting factors that affect a patient's well being—rest, nutrition, peace of mind—we may be discharging patients who are better equipped to manage their illness after their hospitalization.

DO HOSPITALISTS OVERTEST, AND IF SO, WHY?

Kachalia A, Berg A, Fagerlin A, et al. Overuse of testing in preoperative evaluation and syncope: a survey of hospitalists. *Ann Intern Med*. 2015;162(2):100–108.

Background

National efforts, such as the Choosing Wisely campaign, seek to decrease overuse of low-value services.¹¹ The extent of the problem of overtesting among hospitalists and the underlying drivers for unnecessary testing in this group have not been clearly defined.

Findings

Practicing adult medicine hospitalists across the country were given a questionnaire that included clinical vignettes for common inpatient scenarios: a preoperative

evaluation and a syncope workup. Respondents were randomly provided 1 of 4 versions of each vignette, which contained the same clinical information but varied by a family member's request for further testing and by disclosure of the occupation of the family member. For example, in the preoperative evaluation, the vignettes either: (1) provided no details about the patient's son; (2) identified the son as a physician; (3) mentioned the son's request for testing, but did not identify the son as a physician; or (4) identified the son as a physician who requested testing. The syncope vignette versions were structured similarly, except the family member was the patient's wife and she was an attorney. The authors collected 1020 responses from an initial pool of 1500, for a decent 68% response rate. Hospitalists commonly reported overuse of testing, with 52% to 65% of respondents requesting unnecessary testing in the preoperative evaluation scenario, and 82% to 85% in the syncope scenario. The majority of physicians reported that they knew the testing was not clinically indicated based on evidence or guidelines, but were ordering the test due to a desire to reassure the patients or themselves.

Cautions

Responses to clinical vignettes in a survey may not represent actual practices. In addition, all hospitalists surveyed in this study were members of the Society of Hospital Medicine, so may not accurately exemplify all practicing hospitalists.

Implications

Overuse of testing is very common among hospitalists. Although roughly one-third of respondents incorrectly thought that testing in the given scenarios was supported by the evidence or guidelines, the majority knew that testing was not clinically indicated and reported ordering tests to help reassure their patients or themselves. This suggests evidence-based medicine approaches to overuse, such as the Choosing Wisely campaign and the emergence of appropriateness criteria, are likely necessary but insufficient to change physician practice patterns. Efforts to decrease overuse will need to engage clinicians and patients in ways that help overcome the attitude that more testing is required to provide reassurance.

DO UNREALISTIC PATIENT EXPECTATIONS ABOUT INTERVENTIONS INFLUENCE DECISION MAKING AND CONTRIBUTE TO OVERUSE?

Hoffmann TC, Del Mar C. Patient expectations of the benefits and harms of treatments, screening, and tests: a systematic review. *JAMA Intern Med.* 2015;175(2):274–286.

Background

Patient expectations have been implicated as a contributor to overuse of medical interventions. Studies that have measured patients' understanding of the

potential benefits and harms of medical treatments and tests have been scattered across the literature.

Findings

This systematic review aggregated all studies that have quantitatively assessed patients' expectations of the benefits and/or harms of any treatment or test. Of more than 15,000 records screened, only 36 articles met the inclusion criteria of describing a study in which participants were asked to provide a quantitative estimate of the expected benefits and/or harms of a treatment, test, or screen. Fourteen of the studies (40%) focused on screening, 15 (43%) on treatment, 3 (9%) on a test, and 3 (9%) on both treatment and screening. Topics included cancer, medications, surgery, cardiovascular disease, and fetal-maternal medicine. The majority of patients overestimated intervention benefit and underestimated harm, regardless of whether the intervention was a test or a treatment. For example, more than half of participants overestimated benefit for 22 of the 34 outcomes (65%) for which overestimation data were provided, and a majority of participants underestimated harm for 10 of the 15 outcomes (67%) with underestimation data available.

Cautions

This systematic review included a limited number of studies, with varying levels of quality and a lot of heterogeneity, making it difficult to reach clear aggregate conclusions.

Implications

Patients are often overly optimistic about medical interventions and they downplay potential risks, making it more difficult to effectively discourage overuse. Clinicians should clearly understand and communicate realistic expectations for the potential benefits and risks of screening, testing, and medical treatments with patients and the public at large.

HOW BIG OF A PROBLEM IS ANTIBIOTIC OVERUSE IN HOSPITALS AND CAN WE DO BETTER?

Fridkin S, Baggs J, Fagan R, et al. Vital signs: improving antibiotic use among hospitalized patients. *MMWR Morb Mortal Wkly Rep.* 2014;63(9):194–200.

Background

Antibiotics are life-saving therapies, but when used in inappropriate scenarios they can pose many risks.

Findings

This large national database study used the MarketScan Hospital Drug Database and the Centers for Disease Control and Prevention's (CDC) Emerging Infections Program data to explore antibiotic prescribing in hospital patients. More than half of all hospitalized patients (55.7%) received antibiotics during their stay. Half of

all treatment antibiotics were prescribed for the treatment of either lower respiratory infections, urinary tract infections, or presumed gram-positive infections. There was wide variation seen in antibiotic usage across hospital wards. Objective criteria for “potential improvement” in antimicrobial use were developed and applied at a subset of 36 hospitals. Antibiotic prescribing could be improved in 37.2% of the most common prescription scenarios reviewed, including patients receiving vancomycin or those being treated for a urinary tract infection. The impact of reducing inpatient antibiotic exposure on the incidence of *Clostridium difficile* colitis was modeled using data from 2 hospitals, revealing that decreasing hospitalized patients’ exposure to broad-spectrum antibiotics by 30% would lead to a 26% reduction in *C difficile* infections (interquartile range = 15%–38%).

Cautions

Some of the estimates in this study are based on a convenience sample of claims and hospital-based data, thus may not be an accurate representation, particularly when extrapolating to all US hospitals.

Implications

Antibiotic overuse is a rampant problem in hospitals, with many severe downstream effects such as *C difficile* infections and antimicrobial resistance. All hospital units should have an antibiotic stewardship program and should monitor antibiotic usage.

Lee TC, Frenette C, Jayaraman D, Green L, Pilote L. Antibiotic self-stewardship: trainee-led structured antibiotic time-outs to improve antimicrobial use. *Ann Intern Med.* 2014;161(10 suppl):S53–S58.

Background

The CDC and other groups have called for stewardship programs to address antibiotic overuse.¹² Few interventions have been shown to successfully engage medical trainees in efforts to improve their own antibiotic prescribing practices.

Findings

An antibiotic self-stewardship program was developed and led by internal medicine residents at Montreal General Hospital. The intervention included a monthly resident education lecture on antimicrobial stewardship and twice-weekly time-out audits using a structured electronic checklist. Adherence with auditing was 80%. Total costs for antibiotics decreased from \$149,743 CAD to \$80,319 CAD, mostly due to an observed reduction in carbapenems. Moxifloxacin use decreased by 1.9 defined daily doses per 1000 patient-days per month ($P = 0.048$). Rates of clostridium difficile colitis declined from 24.2 to 19.6 per

10,000 patient-days, although this trend did not meet statistical significance (incidence rate ratio, 0.8 [confidence interval, 0.5–1.3]).

Cautions

Although the use of some broader spectrum antibiotics decreased, there was no measurable change in overall antibiotic use, suggesting that physicians may have narrowed antibiotics but did not often completely discontinue them. The time-series analyses in this study cannot provide causal conclusions between the intervention and outcomes. In fact, carbapenem usage appears to have significantly decreased prior to the implementation of the program, for unclear reasons. The feasibility of this educational intervention outside of a residency program is unclear.

Implications

A combination of education, oversight and frontline clinician engagement in structured time-outs may be effective, at least in narrowing antibiotic usage. The structured audit checklist developed by these authors is available for free in the supplementary materials of the *Annals of Internal Medicine* article.

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